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Controlling Wood-Destroying Beetles in Buildings and Furniture

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U.S. DEPARTMENT OF AGRICULTURE Leaflet No. 558

CONTROLLING WOOD-DESTROYING BEETLES IN BUILDINGS AND FURNITURE

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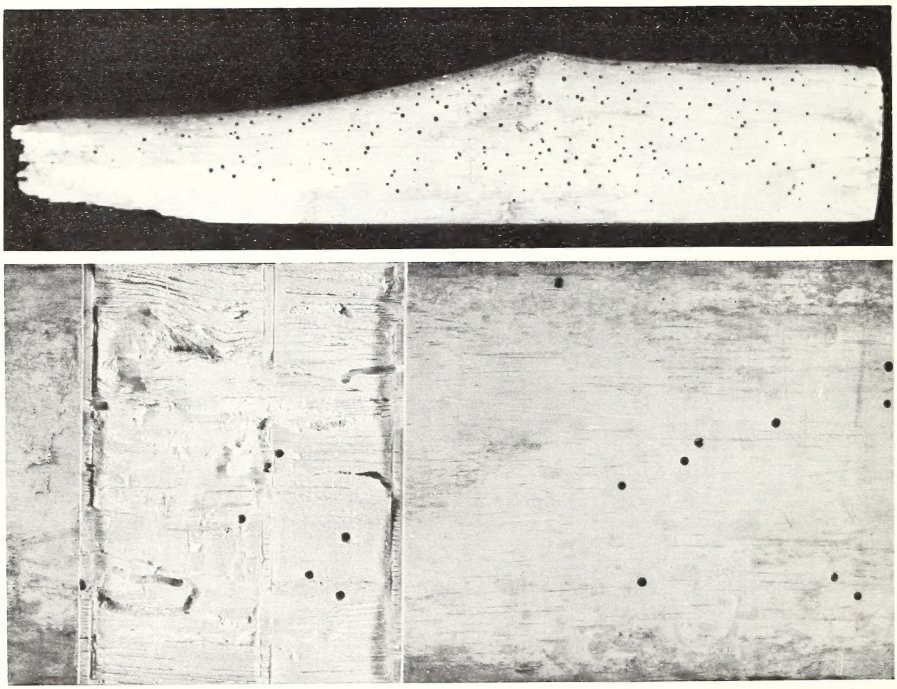
Seasoned wood is sometimes attacked by groups of insects that are commonly, though incorrectly, called powder-post beetles. Many of the insects first attack the wooden foundations of buildings and feed on the softwood lumber in the sills, joists, and subflooring. If not controlled, they may then advance into the walls. From there, some are capable of infesting hardwood within the building. Others are restricted to hardwoods and make their attacks directly on such items as finish flooring, paneling, furniture, and tool handles. Stored lumber, whether hardwood or softwood, is also infested. Sapwood is attacked more often than heartwood.

Though losses are probably heaviest in warm, humid climates, the insects occur throughout the United States and, in fact, all over the world.

The damage is done by the larvae or grubs, which tunnel in the wood

[1]Mr. Johnston is now retired.



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Above: **A hardwood ax handle ruined by beetles.** ***Below:*** **Infested pine board, with part of the surface removed to show the tunnels and boring dust.**

for months or years before they emerge as adults beetles. Since the larvae never come to the surface, their mining may be extensive before it is noticed. Perhaps for this reason, the circumstances in which wood becomes infested are often regarded as mysterious. Through research and experience, however, the habits of the insects have become reasonably well known. This leaflet answers questions frequently asked about detection and control. It is intended only as a general guide, though. When unusual cases of damage occur, the building owner should seek advice from a university extension entomologist, county agent, or *pest control operator.*

How Can I Tell If Beetles Are Present?

If you see piles of very fine sawdust on or beneath wood, look for small round or oval "shotholes" in the wood surface. These are exit holes, and indicate that some of the grubs have transformed to adults and left the wood. Beneath the surface will be meandering tunnels packed with fine powder and sometimes containing white, wormlike larvae.

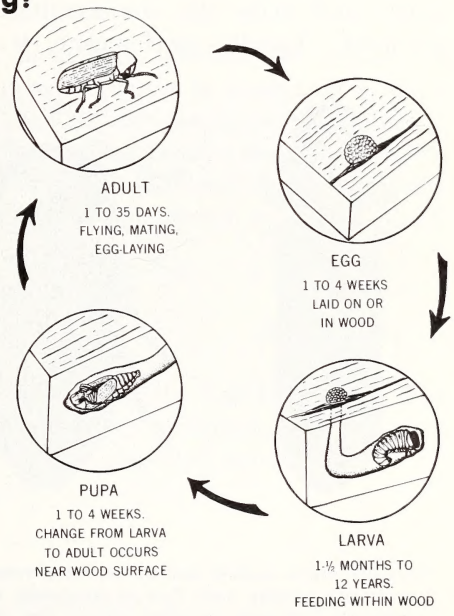
I've Found The Damage, But Why Don't I Ever See The Beetles?

The adults that make the exit holes range from 1/8 to 1 inch long, depending on their species. But they may not be numerous, they are short-lived, and they usually are present only during April through July. Some of the commonest species are active chiefly at night.

How Do Beetles Get Into a Building?

Those that attack softwoods often fly into the crawl spaces beneath buildings and lay eggs on the exposed wood there. The eggs hatch into tiny larvae that bore below the surface and start making tunnels in which they live and feed. After a long larval period and a much shorter pupal stage, the newly formed adults chew the characteristic shotholes and emerge to lay eggs for another brood. After several generations, infestations that began in the crawl space may spread into higher parts of the house.

The species that attack only hardwoods are generally brought into the building in wood that contains eggs or larvae. The softwood feeders often enter in the same way, and for this reason new or used construction lumber should be examined carefully be-



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The larval or grub stage, in which the wood-destroying beetles do their damage, is long in proportion to the rest of the life cycle.

fore it is installed.

All species must have bare wood to lay their eggs on. Hardwood items in a home are usually finished with paint, varnish, shellac, sealer, or wax. They are therefore safe as long as no bare wood is left exposed. Emergence of adult beetles from finished hardwood generally means that the infestation began before the finish was applied.

Do Attacks Ever Die Out of Their Own Accord?

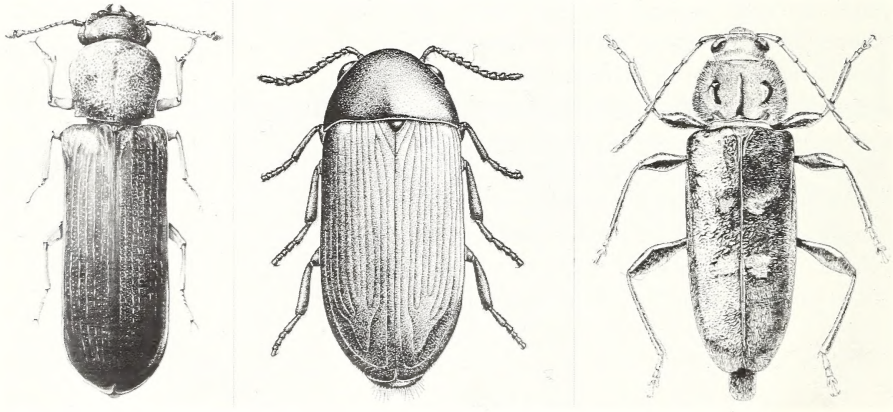
Yes, but these instances vary with the beetle species, wood attacked, and environmental conditions.

In unfinished wood, attacks virtually always intensify until chemicals are applied. However, if holes are found in a few floor joists with edges of bark, and the holes are only in the bark or nearby, chemical treatment is probably not needed. This damage probably was caused by insects that attacked the wood before it was milled and dried.

Beetles emerging from finished wood may reinfest it by laying eggs in their own exit holes. They do not always do so, it is well to keep close watch for fresh holes and dust and perhaps to apply precautionary treatments.

How Long Before Damage Becomes Noticeable?

From 3 months to 3 years or more are required for larvae to change to adults and make the characteristic shotholes. Larval development is fastest when temperatures are warm and wood is moist. It also varies with beetle species and the type of wood attacked.



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These are adults—seldom seen by the home owner—of the three most destructive groups of wood-destroying beetles. *Left:* One of the Lyctus, or true powder-post beetles, that attack recently seasoned hardwood sapwood. *Center:* One of the anobiid beetles, which are among the most common feeders on both hardwoods and softwoods within buildings. *Right:* The old house borer, sometimes called from its antennae a longhorn borer, primarily attacks softwood framing lumber. Lyctus adults are 1/8 to 5/16 inch in length, anobiids 1/4 to 3/4 inch, and the old house borer 1/2 to 1 inch.

Are The Beetles Different From Termites?

Yes. Except that both groups of insects consume wood, their habits are entirely different. Termites live in colonies, usually underground, and send large numbers of adult workers to mine the wood and thus bring food to the nest. Termites rarely make surface holes in the wood, and they tend to remove the interior wood more or less completely, rather than merely tunneling into it. Wooden members excavated by subterranean termites may contain particles of dried mud, and there may be mud tubes or other connections by which the workers return to the soil. White-bodied, fully matured workers can usually be seen moving around when termite-infested wood is broken open. Beetle larvae, in their winding, dust-filled tunnels, are wormlike in shape, without legs. When termites are well established they will send up swarms of brown or black adults each spring. Beetles never swarm.

My House Has Been Treated For Termites. Will That Keep The Beetles Out Of The Crawl Space?

No. For termite control, insecticides are usually placed in the soil under or near building foundations or directly on the damaged wood. They give no protection against beetles flying to the joists and subflooring.

In a House On a Concrete Slab, What Are The Likely Points For Infestation?

If all exposed wood is painted or varnished, it's difficult for flying adult beetles to enter slab houses. When damage occurs, it nearly always is because infested lumber was used in building. Most lumber now is kiln-dried; properly done, this process destroys eggs, larvae, and pupae. Sometimes, however, the lumber becomes infested in storage. Most damage to slab houses occurs within 5 years after construction. If no beetles emerge in that time, the house usually can be considered safe from beetle attack.

What About a Raised House?

A new raised house is also subject to early hazard from infested lumber. In addition, the wood exposed in the crawl space remains open to attack as long as the building stands. The joists and subflooring should therefore be inspected yearly.

What Precautions Can I Take?

Chance of attack is lessened if the crawl space is well drained. If the soil cannot be kept dry, spreading a moisture barrier (polyethylene plastic or roll roofing) over it will prevent moisture vaporizing from the soil and condensing on the under parts of the house. Keeping the wood dry by this

means will help protect against decay as well as insect damage.

Lumber properly pressure-treated with preservatives probably is immune to attack. In localities where numerous buildings have become infested, a surface coating of chemicals, as described later, may be worth applying as a preventive of crawl-space infestations, though it will not guarantee protection.

Untreated, unfinished lumber stored directly above the ground is often damaged severely. Storing above a solid floor is better.

If I Find Damage, How Do I Control It?

If the infestation is small and easy to reach you may be able to control it yourself by spraying or brushing the wood with a deodorized kerosene, such as deobase or ultrasene, that contains either 2 percent chlordane, or 0.5 percent lindane. Other light organic solvents are suitable if their odor is not objectionable. One gallon will cover at least 100 square feet of wood surface.

For widespread infestation in crawl spaces, a power sprayer gives best results. Sprays should be coarse and under only enough pressure to wet the surface of the wood. A fine mist is ineffective and may explode if ignited.

Be careful! Provide plenty of ventilation, do not smoke, and shut off pilot lights.

Indoors, applications must be limited to spot treatments, and safety precautions are doubly important. The finish should preferably be removed from the wood, since it hampers penetration and may be softened by the solvent. If removal is impractical, treat the wood but do not touch it until it has dried for several hours. When treating above a finished ceiling, avoid using too much material, since it may seep through and cause stains. Similarily, the solutions should be applied sparingly on parquet floors, to avoid dissolving the asphalt bonding cement.

Can I Treat At Any Time Of Year?

Yes. The insects tend to be on or near the surface during April to July, and applications then kill a large proportion at once. But treatments at other times are adequate.

Since the wood often contains 3 generations at the same time, and since the insecticide usually does not penetrate the wood completely, fresh holes and piles of boring dust may appear for 2 or 3 years. Nevertheless the chemicals in the surface layer will kill the emerging adults and reinfestations will be prevented.

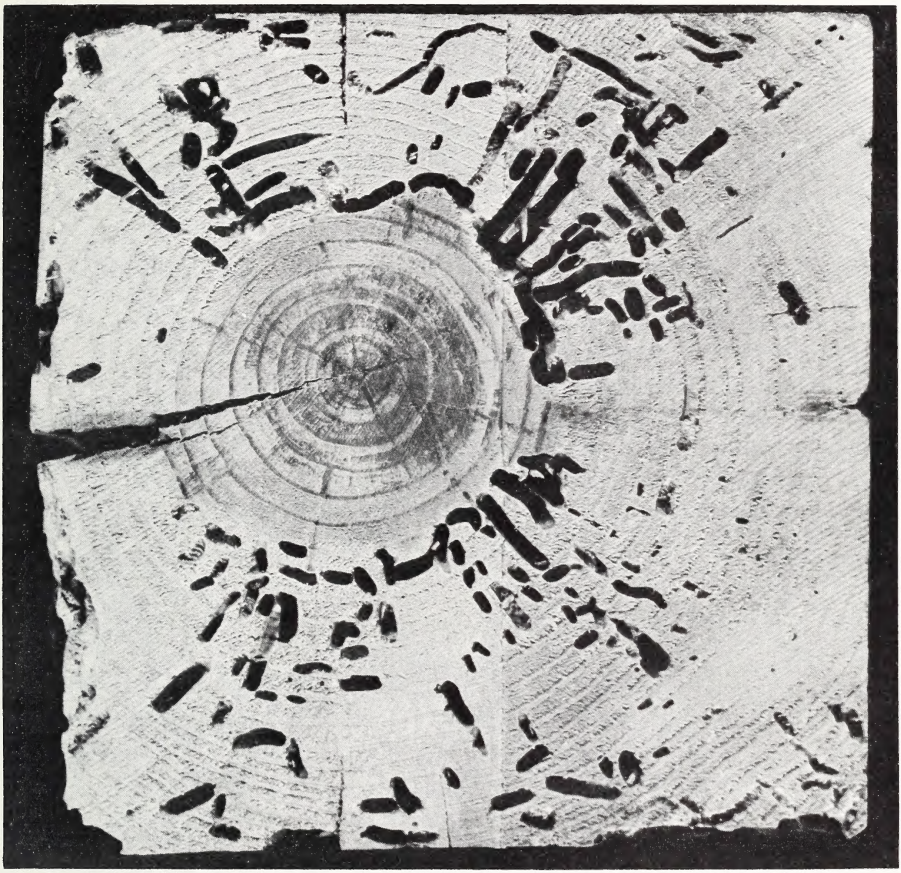
Will These Treatments Control Severe Infestations?

A widespread infestation of the under parts of a house may not yield to surface treatments. And if the flooring, subflooring, sills, or bottom plates are damaged, the insects may have spread into the walls.

In such instances a pest control operator should be consulted. Sometimes infestations are isolated in large timbers and he can obtain results quickly by injecting chemicals under pressure through boreholes spaced at short intervals. If the pests have spread into the walls, fumigation may be required—a dangerous job that must be done by a qualified fumigator. Fumigation does not guarantee against reinfestation, but it is the only proven way of dealing with severe hidden attacks.

What About Furniture And Other Moveable Hardwood Items?

If such items are infested when brought into the house, exit holes will usually appear within 3 or 4 years. Insecticides can be brushed or sprayed on, preferably after removal of the finish. If the attack is light, the insecticides can be put into individual holes with a small brush or a plastic squeeze bottle equipped with a tube that will produce a pinpoint stream. Do not treat parts of furniture that people will touch.



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Cross section through an 8- by 8-inch pine beam damaged by the beetle called the old house borer.

Precautions

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers—out of reach of children and pets—and away from foodstuffs.

Apply pesticides selectively and carefully. Do not apply a pesticide when there is danger of drift to other areas. Avoid prolonged inhalation of spray or dust. When applying a pesticide it is advisable that you be carefully clothed.

After handling a pesticide, do not eat, drink, or smoke until you have washed. If a pesticide is swallowed or gets in the eyes, follow the first aid treatment given on the label, and get prompt medical attention. If the pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Dispose of empty pesticide containers by wrapping them in several layers of newspaper and placing them in your trash can.

It is difficult to remove all traces of a herbicide (weed killer) from equipment. Therefore, to prevent injury to desirable plants do not use the same equipment for insecticides and fungicides that you use for a herbicide.

NOTE: Registrations of pesticides are under constant review by the Environmental Protection Agency. Use only pesticides that bear the EPA registration number and carry directions for home and garden use.

Other Suggested Reading

Eastern subterranean termite. 1970. V. K. Smith, Jr., and H. R. Johnston. U.S. Dep. Agric. Forest Pest Leafl. 68 (Rev.), 8 p.

Protecting log cabins, rustic work, and unseasoned wood from injurious insects in the eastern United States. 1970. R. A. St. George. U.S. Dep. Agric. Farmers' Bull. 2104 (Rev.), 18 p.

The old house borer. 1970. T. McIntyre, and R. A. St. George. U.S. Dep. Agric. Leafl. 501 (Rev.), 8 p.

This publication supersedes USDA Leaflet No. 358, "Powder-post Beetles in Buildings: What To Do About Them."

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